MUMBAI B.SC.IT STUDY

B.SC.IT SYLLABUS 2018 - 2019 SEMESTER - V

- Software Project Management
- ——
- Internet Of Things
- ——
- Artificial Intelligence
- ——
- Advanced Web Programming
- ——
- Linux System Administration
- ——
- Enterprise Java
- ——
- Next Generation Technologies

SYLLABUS: 2018 – 2019
B.SC.IT: SEM – V

NOTE:

All syllabus are taken from Mumbai University sites

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B.Sc.IT: Semester – V

(Syllabus)

[2018 – 2019]

PAPER - I

Software Project

Management

– : SYLLABUS : –

UNIT I

SOFTWARE PROJECT MANAGEMENT | PROJECT EVALUATION AND PROGRAMME MANAGEMENT | AN OVERVIEW OF PROJECT PLANNING

⇒ **Introduction To Software Project Management:**
  - *Introduction*
  - *Why Is Software Project Management Important?*
  - *What Is A Project?*
  - *Software Projects versus Other Types Of Project*
  - *Contract Management And Technical Project Management*
  - *Activities Covered By Software Project Management*
  - *Plans*
  - *Methods And Methodologies*
  - *Some Ways Of Categorizing Software Projects*
  - *Project Charter*
  - *Stakeholders*
  - *Setting Objectives*
  - *The Business Case*
  - *Project Success And Failure*
  - *What Is Management?*
  - *Management Control*
  - *Project Management Life Cycle*
  - *Traditional Versus Modern Project Management Practices*

⇒ **Project Evaluation And Programme Management:**
  - *Introduction*
  - *Business Case*
  - *Project Portfolio Management*
  - *Evaluation of Individual Projects*
  - *Cost-Benefit Evaluation Techniques*
  - *Risk Evaluation*
  - *Programme Management*
  - *Managing The Allocation Of Resources Within Programmes*
  - *Strategic Programme Management*
  - *Creating A Programme*
  - *Aids To Programme Management*
  - *Some Reservations About Programme Management*
  - *Benefits Management*

⇒ **An Overview Of Project Planning:**
  - *Introduction To Step Wise Project Planning*
  - *Step 0: Select Project*
  - *Step 1: Identify Project Scope And Objectives*
  - *Step 2: Identify Project Infrastructure*
  - *Step 3: Analyse Project Characteristics*
  - *Step 4: Identify Project Products And Activities*
  - *Step 5: Estimate Effort For Each Activity*
  - *Step 6: Identify Activity Risks*
  - *Step 7: Allocate Resources*
  - *Step 8: Review/Publicize Plan*
  - *Steps 9 and 10: Execute Plan/Lower Levels Of Planning*

Turn Over ☞

UNIT II

SELECTION OF AN APPROPRIATE PROJECT APPROACH | SOFTWARE EFFORT ESTIMATION | COCOMO II

⇒ **Selection Of An Appropriate Project Approach:**
- Introduction
- Build Or Buy?
- Choosing Methodologies And Technologies
- Software Processes And Process Models
- Choice Of Process Models
- Structure Versus Speed Of Delivery
- The Waterfall Model
- The Spiral Model
- Software Prototyping
- Other Ways Of Categorizing Prototypes
- Incremental Delivery
- Atern/Dynamic Systems Development Method
- Rapid Application Development
- Agile Methods
- Extreme Programming (XP)
- Scrum
- Lean Software Development
- Managing Iterative Processes
- Selecting The Most Appropriate Process Model

⇒ **Software Effort Estimation:**
- Introduction
- Where Are The Estimates Done?
- Problems With Over-And Under-Estimates
- The Basis For Software Estimating
- Software Effort Estimation Techniques
- Bottomup Estimating
- The Top-Down Approach And Parametric Models
- Expert Judgement
- Estimating by Analogy
- Albrecht Function Point Analysis
- Function Points Mark II
- COSMIC Full Function Points

⇒ **COCOMO II:**
- A Parametric Productivity Model
- Cost Estimation
- Staffing Pattern
- Effect Of Schedule Compression
- Capers Jones Estimating Rules Of Thumb

UNIT III

ACTIVITY PLANNING | RISK MANAGEMENT | RESOURCE ALLOCATION

⇒ **Activity Planning:**
- Introduction
- Objectives Of Activity Planning
- When To Plan
- Project Schedules
- Projects And Activities
- Sequencing And Scheduling Activities
- Network Planning Models
- Formulating A Network Model
- Adding The Time Dimension
- The Forward Pass

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- *Backward Pass*
- *Identifying The Critical Path*
- *Activity Float*
- *Shortening The Project Duration*
- *Identifying Critical Activities*
- *Activity-On-Arrow Networks*

⇒ **Risk Management:**
  - *Introduction*
  - *Risk*
  - *Categories Of Risk*
  - *Risk Management Approaches*
  - *A Framework For Dealing With Risk*
  - *Risk Identification*
  - *Risk Assessment*
  - *Risk Planning*
  - *Risk Management*
  - *Evaluating Risks To The Schedule*
  - *Boehm's Top 10 Risks And Counter Measures*
  - *Applying The PERT Technique*
  - *Monte Carlo Simulation*
  - *Critical Chain Concepts*

⇒ **Resource Allocation:**
  - *Introduction*
  - *Nature Of Resources*
  - *Identifying Resource Requirements*
  - *Scheduling Resources*
  - *Creating Critical Paths*
  - *Counting The Cost*
  - *Being Specific*
  - *Publishing The Resource Schedule*
  - *Cost Schedules*
  - *Scheduling Sequence*

UNIT IV

MONITORING AND CONTROL | MANAGING CONTRACTS | MANAGING PEOPLE IN SOFTWARE ENVIRONMENTS | ORGANIZATIONAL BEHAVIOUR

⇒ **Monitoring And Control:**
  - *Introduction*
  - *Creating The Framework*
  - *Collecting The Data*
  - *Review*
  - *Visualizing Progress*
  - *Cost Monitoring*
  - *Earned Value Analysis*
  - *Prioritizing Monitoring*
  - *Getting The Project Back To Target*
  - *Change Control*
  - *Software Configuration Management (SCM)*

⇒ **Managing Contracts:**
  - *Introduction*
  - *Types Of Contract*
  - *Stages In Contract Placement*
  - *Typical Terms Of A Contract*
  - *Contract Management*

Turn Over ☞

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- ▪ *Acceptance*
⇒ **Managing People In Software Environments:**
  - ▪ *Introduction*
  - ▪ *Understanding Behaviour*
⇒ **Organizational Behaviour:**
  - ▪ *A Background*
  - ▪ *Selecting The Right Person For The Job*
  - ▪ *Instruction In The Best Methods*
  - ▪ *Motivation*
  - ▪ *The Oldham-Hackman Job Characteristics Model*
  - ▪ *Stress*
  - ▪ *Stress Management*
  - ▪ *Health And Safety*
  - ▪ *Some Ethical And Professional Concerns*

UNIT V

WORKING IN TEAMS | SOFTWARE QUALITY | PROJECT CLOSEOUT

⇒ **Working In Teams:**
  - ▪ *Introduction*
  - ▪ *Becoming A Team*
  - ▪ *Decision Making*
  - ▪ *Organization And Team Structures*
  - ▪ *Coordination Dependencies*
  - ▪ *Dispersed And Virtual Teams*
  - ▪ *Communication Genres*
  - ▪ *Communication Plans*
  - ▪ *Leadership*
⇒ **Software Quality:**
  - ▪ *Introduction*
  - ▪ *The Place Of Software Quality In Project Planning*
  - ▪ *Importance Of Software Quality*
  - ▪ *Defining Software Quality*
  - ▪ *Software Quality Models*
  - ▪ *ISO 9126*
  - ▪ *Product And Process Metrics*
  - ▪ *Product Versus Process Quality Management*
  - ▪ *Quality Management Systems*
  - ▪ *Process Capability Models*
  - ▪ *Techniques To Help Enhance Software Quality*
  - ▪ *Testing*
  - ▪ *Software Reliability*
  - ▪ *Quality Plans*
⇒ **Project Closeout:**
  - ▪ *Introduction*
  - ▪ *Reasons For Project Closure*
  - ▪ *Project Closure Process*
  - ▪ *Performing A Financial Closure*
  - ▪ *Project Closeout Report*

– : BOOKS : –

1.
BOOK TITLE: SOFTWARE PROJECT MANAGEMENT
AUTHOR'S: BOB HUGHES | MIKE COTTERELL | RAJIB MALL
PUBLISHER: TMH
EDITION: 6TH
YEAR: 2018
PAPERBACK: 480 PAGES
DOWNLOAD/BUY: @BLOGGER | @PDF | @TORRENT

2.
BOOK TITLE: PROJECT MANAGEMENT AND TOOLS & TECHNOLOGIES – AN OVERVIEW
AUTHOR'S: SHAILESH MEHTA
PUBLISHER: SPD
EDITION: 1ST
YEAR: 2017
PAPERBACK: 612 PAGES
DOWNLOAD/BUY: @BLOGGER | @AMAZON | @FLIPKART

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PAPER - II

Internet Of

Things

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UNIT I

THE INTERNET OF THINGS | DESIGN PRINCIPLES FOR CONNECTED DEVICES | INTERNET PRINCIPLES | HTTPS

⇒ **The Internet of Things:**
- *An Overview*
- *The Flavour Of The Internet of Things*
- *The "Internet" Of "Things"*
- *The Technology Of The Internet Of Things*
- *Enchanted Objects*
- *Who Is Making The Internet Of Things?*

⇒ **Design Principles For Connected Devices:**
- *Calm And Ambient Technology*
- *Magic As Metaphor*
- *Privacy*
- *Keeping Secrets*
- *Whose Data Is It Anyway?*
- *Web Thinking For Connected Devices*
- *Small Pieces*
- *Loosely Joined*
- *First-Class Citizens On The Internet*
- *Graceful Degradation*
- *Affordances*

⇒ **Internet Principles:**
- *Internet Communications:*
- *An Overview*
- *IP*
- *TCP*
- *The IP Protocol Suite (TCP/IP)*
- *UDP*
- *IP Addresses*
- *DNS*
- *Static IP Address Assignment*
- *Dynamic IP Address Assignment*
- *IPv6*
- *MAC Addresses*
- *TCP and UDP Ports*

⇒ **An Example:**
- *HTTP Ports*
- *Other Common Ports*
- *Application Layer Protocols*
- *HTTP*

⇒ **HTTPS:**
- *Encrypted HTTP*
- *Other Application Layer Protocols*

UNIT II

THINKING ABOUT PROTOTYPING | PROTOTYPING EMBEDDED DEVICES

⇒ **Thinking About Prototyping:**
- *Sketching*
- *Familiarity*
- *Costs Versus Ease Of Prototyping*
- *Prototypes And Production*

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INTERNET OF THINGS
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- ▪ *Changing Embedded Platform*
- ▪ *Physical Prototypes And Mass Personalisation*
- ▪ *Climbing Into The Cloud*
- ▪ *Open Source Versus Closed Source*
- ▪ *Why Closed?*
- ▪ *Why Open?*
- ▪ *Mixing Open And Closed Source*
- ▪ *Closed Source For Mass Market Projects*
- ▪ *Tapping Into The Community*
- ⇒ **Prototyping Embedded Devices:**
  - ▪ *Electronics*
  - ▪ *Sensors*
  - ▪ *Actuators*
  - ▪ *Scaling Up The Electronics*
  - ▪ *Embedded Computing Basics*
  - ▪ *Microcontrollers*
  - ▪ *System-On-Chips*
  - ▪ *Choosing Your Platform*
  - ▪ *Arduino*
  - ▪ *Developing On The Arduino*
  - ▪ *Some Notes On The Hardware*
  - ▪ *Openness*
  - ▪ *Raspberry Pi*
  - ▪ *Cases And Extension Boards*
  - ▪ *Developing On The Raspberry Pi*
  - ▪ *Some Notes On The Hardware*

UNIT III

PROTOTYPING THE PHYSICAL DESIGN | PROTOTYPING ONLINE COMPONENTS

- ⇒ **Prototyping the Physical Design:**
  - ▪ *Preparation*
  - ▪ *Sketch*
  - ▪ *Iterate And Explore*
  - ▪ *Nondigital Methods*
  - ▪ *Laser Cutting*
  - ▪ *Choosing A Laser Cutter*
  - ▪ *Software*
  - ▪ *Hinges And Joints*
  - ▪ *3D Printing*
  - ▪ *Types Of 3D Printing*
  - ▪ *Software*
  - ▪ *CNC Milling*
  - ▪ *Repurposing/Recycling*
- ⇒ **Prototyping Online Components:**
  - ▪ *Getting Started With An API*
  - ▪ *Mashing Up APIs*
  - ▪ *Scraping*
  - ▪ *Legalities*
  - ▪ *Writing A New API*
  - ▪ *Clockodillo*
  - ▪ *Security*
  - ▪ *Implementing The API*
  - ▪ *Using Curl To Test*
  - ▪ *Going Further*

Turn Over ☞

- Real-Time Reactions
- Polling
- Comet
- Other Protocols
- MQ Telemetry Transport
- Extensible Messaging and Presence Protocol
- Constrained Application Protocol

UNIT IV

TECHNIQUES FOR WRITING EMBEDDED CODE | BUSINESS MODELS | PROVIDE INFRASTRUCTURE

⇒ **Techniques For Writing Embedded Code:**
- Memory Management
- Types Of Memory
- Making The Most Of Your RAM
- Performance And Battery Life
- Libraries
- Debugging

⇒ **Business Models:**
- A Short History Of Business Models
- Space And Time
- From Craft To Mass Production
- The Long Tail Of The Internet
- Learning From History
- The Business Model Canvas
- Who Is The Business Model For?
- Models
- Make Thing
- Sell Thing
- Subscriptions
- Customisation
- Be a Key Resource

⇒ **Provide Infrastructure:**
- Sensor Networks
- Take A Percentage
- Funding An Internet Of Things Startup
- Hobby Projects And Open Source
- Venture Capital
- Government Funding
- Crowdfunding
- Lean Startups

UNIT V

MOVING TO MANUFACTURE | ETHICS

⇒ **Moving To Manufacture:**
- What Are You Producing?
- Designing Kits
- Designing Printed circuit boards
- Software Choices
- The Design Process
- Manufacturing Printed Circuit Boards
- Etching Boards
- Milling Boards
- Assembly
- Testing

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- Mass-Producing The Case And Other Fixtures
- Certification
- Costs
- Scaling Up Software
- Deployment
- Correctness And Maintainability
- Security
- Performance
- User Community

⇒ **Ethics:**
- Characterizing The Internet Of Things
- Privacy
- Control
- Disrupting Control
- Crowdsourcing
- Environment
- Physical Thing
- Electronics
- Internet Service
- Solutions
- The Internet Of Things As Part Of The Solution

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– : BOOKS : –

1. **BOOK TITLE:** ARTIFICIAL INTELLIGENCE & SOFT COMPUTING FOR BEGINNERS
AUTHOR'S: ANANDITA DAS BHATTACHARJEE
PUBLISHER: SHROFF
EDITION: 1ST
YEAR: 2014
PAPERBACK: 720 PAGES
DOWNLOAD/BUY: @BLOGGER **|** @AMAZON **|** @FLIPKART

2. **BOOK TITLE:** ARTIFICIAL INTELLIGENCE
AUTHOR'S: ELAINE RICH **|** KEVIN KNIGHT **|** SHIVASHANKAR NAIR
PUBLISHER: MCGRAW-HILL
EDITION: 3RD
YEAR: 01/JULY/2017
PAPERBACK: 588 PAGES
DOWNLOAD/BUY: @BLOGGER **|** @PDF **|** @TORRENT

3. **BOOK TITLE:** ARTIFICIAL INTELLIGENCE: A RATIONAL APPROACH
AUTHOR'S: RAHUL DEVA
PUBLISHER: SHROFF
EDITION: 1ST
YEAR: 2018
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4. **BOOK TITLE:** A FIRST COURSE IN ARTIFICIAL INTELLIGENCE
AUTHOR'S: DEEPAK KHEMANI
PUBLISHER: MCGRAW-HILL
EDITION: 1ST
YEAR: 01/JULY/2017
PAPERBACK: 944 PAGES
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5. **BOOK TITLE:** ARTIFICIAL INTELLIGENCE: A MODERN APPROACH
AUTHOR'S: STUART RUSSEL **|** PETER NORVIG
PUBLISHER: PEARSON
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PAPER - III

Artificial Intelligence

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ARTIFICIAL INTELLIGENCE
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UNIT I

INTRODUCTION | INTELLIGENT AGENTS

⇒ **Introduction:**
- *What is Artificial Intelligence?*
- *Foundations of AI*
- *History*
- *The State Of Art AI Today*

⇒ **Intelligent Agents:**
- *Agents And Environment*
- *Good Behavior*
- *Nature Of Environment*
- *The Structure Of Agents*

UNIT II

SOLVING PROBLEMS BY SEARCHING | BEYOND CLASSICAL SEARCH

⇒ **Solving Problems By Searching:**
- *Problem Solving Agents*
- *Examples Problems*
- *Searching For Solutions*
- *Uninformed Search*
- *Informed Search Strategies*
- *Heuristic Functions*

⇒ **Beyond Classical Search:**
- *Local Search Algorithms*
- *Searching With Non-Deterministic Action*
- *Searching With Partial Observations*
- *Online Search Agents And Unknown Environments*

UNIT III

ADVERSARIAL SEARCH | LOGICAL AGENTS

⇒ **Adversarial Search:**
- *Games*
- *Optimal Decisions In Games*
- *Alpha-Beta Pruning*
- *Stochastic Games*
- *Partially Observable Games*
- *State-Of-The-Are Game Programs*

⇒ **Logical Agents:**
- *Knowledge Base Agents*
- *The Wumpus World*
- *Logic*
- *Propositional Logic*
- *Propositional Theorem Proving*
- *Effective Propositional Model Checking*
- *Agents Based On Propositional Logic*

UNIT IV

FIRST ORDER LOGIC | INFERENCE IN FIRST ORDER LOGIC

⇒ **First Order Logic:**
- *Syntax And Semantics*
- *Using First Order Logic*
- *Knowledge Engineering In First Order Logic*

⇒ **Inference In First Order Logic:**
- *Propositional vs. First Order*
- *Unification And Lifting*
- *Forward And Backward Chaining*
- *Resolution*

UNIT V

PLANNING | KNOWLEDGE REPRESENTATION

⇒ **Planning:**
- *Definition Of Classical Planning*
- *Algorithms For Planning As State Space Search*
- *Planning Graphs*
- *Other Classical Planning Approaches*
- *Analysis Of Planning Approaches*
- *Time*
- *Schedules And Resources*
- *Hierarchical Planning*
- *Planning And Acting In Nondeterministic Domains*
- *Multiagent Planning*

⇒ **Knowledge Representation:**
- *Categories And Objects*
- *Events*
- *Mental Events And Objects*
- *Reasoning Systems For Categories*
- *Reasoning With Default Information*
- *Internet Shopping World*

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PUBLISHER: McGRAW-HILL
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PAPER - IV

ELECTIVE – I

Advanced Web Programming

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UNIT I

INTRODUCING .NET | THE C# LANGUAGE | TYPES, OBJECTS AND NAMESPACES

⇒ **Introducing .NET:**
- *The .NET Framework*
- *C#*
- *VB And The .NET Languages*
- *The Common Language Runtime*
- *The .NET Class Library*

⇒ **The C# Language:**
- *C# Language Basics*
- *Variables And Data Types*
- *Variable Operations*
- *Object-Based Manipulation*
- *Conditional Logic*
- *Loops*
- *Methods*

⇒ **Types, Objects And Namespaces:**
- *The Basics About Classes*
- *Building A Basic Class*
- *Value Types And Reference Types*
- *Understanding Namespaces And Assemblies*
- *Advanced Class Programming*

UNIT II

WEB FORM FUNDAMENTALS | FORM CONTROLS | WEBSITE NAVIGATION

⇒ **Web Form Fundamentals:**
- *Writing Code*
- *Using The Code-Behind Class*
- *Adding Event Handlers*
- *Understanding The Anatomy Of An ASP.NET Application*
- *Introducing Server Controls*
- *Using The Page Class*
- *Using Application Events*
- *Configuring An ASP.NET Application*

⇒ **Form Controls:**
- *Stepping Up To Web Controls*
- *Web Control Classes*
- *List Controls*
- *Table Controls*
- *Web Control Events And AutoPostBack*
- *Validation*
- *Understanding Validation*
- *Using The Validation Controls*
- *Rich Controls*
- *The Calendar*
- *The AdRotator*
- *Pages With Multiple Views*
- *User Controls And Graphics*
- *User Controls*
- *Dynamic Graphics*
- *The Chart Control*

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ADVANCED WEB PROGRAMMING
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⇒ **Website Navigation:**
- Site Maps
- URL Mapping And Routing
- The SiteMapPath Control
- The TreeView Control
- The Menu Control

UNIT III

ERROR HANDLING, LOGGING AND TRACING | STATE MANAGEMENT | THEMES AND MASTER PAGES

⇒ **Error Handling, Logging And Tracing:**
- *Avoiding Common Errors*
- *Understanding Exception Handling*
- *Handling Exceptions*
- *Throwing Your Own Exceptions*
- *Using Page Tracing*

⇒ **State Management:**
- *Understanding The Problem Of State*
- *Using View State*
- *Transferring Information Between Pages*
- *Using Cookies*
- *Managing Session State*
- *Configuring Session State*
- *Using Application State*
- *Comparing State Management Options Styles*

⇒ **Themes And Master Pages:**
- *Styles*
- *Themes*
- *Master Page Basics*
- *Advanced Master Pages*

UNIT IV

ADO.NET FUNDAMENTALS | DATA BINDING | THE DATA CONTROLS:

⇒ **ADO.NET Fundamentals:**
- *Understanding Databases*
- *Configuring Your Database*
- *Understanding SQL Basics*
- *Understanding The Data Provider Model*
- *Using Direct Data Access*
- *Using Disconnected Data Access*

⇒ **Data Binding:**
- *Introducing Data Binding*
- *Using Single-Value Data Binding*
- *Using Repeated-Value Data Binding*
- *Working with Data Source Controls*

⇒ **The Data Controls:**
- *The GridView*
- *Formatting The GridView*
- *Selecting A GridView Row*
- *Editing With The GridView*
- *Sorting And Paging The GridView*
- *Using GridView Templates*
- *The DetailsView And FormView*

UNIT V

XML | SECURITY FUNDAMENTALS | ASP.NET AJAX

⇒ **XML:**
- XML Explained
- The XML Classes
- XML Validation
- XML Display And Transforms

⇒ **Security Fundamentals:**
- Understanding Security Requirements
- Authentication And Authorization
- Forms Authentication
- Windows Authentication

⇒ **ASP.NET AJAX:**
- Understanding Ajax
- Using Partial Refreshes
- Using Progress Notification
- Implementing Timed Refreshes
- Working With The ASP.NET AJAX Control Toolkit

– : BOOKS : –

1.
BOOK: BEGINNING ASP.NET 4.5 IN C#
AUTHOR'S: MATTHEW MACDONALD
PUBLISHER: APRESS
YEAR: 2012
DOWNLOAD: @Blogger | @PDF | @Torrent
BUY: @Amazon | @Flipkart

2.
BOOK: MURACH'S C# 2015
AUTHOR'S: ANNE BOHEM | JOEL MURACH
PUBLISHER: MURACH
YEAR: 2016
EDITION: 3RD
DOWNLOAD: @Blogger | @PDF | @Torrent
BUY: @Amazon | @Flipkart

3.
BOOK: MURACH'S ASP.NET 4.6 WEB PROGRAMMING IN C# 2015
AUTHOR'S: MARY DELAMATER | ANNE BOHEM
PUBLISHER: SPD
YEAR: 2016
EDITION: 6TH
DOWNLOAD: @Blogger | @PDF | @Torrent
BUY: @Amazon | @Flipkart

4.
BOOK: ASP.NET 4.0 PROGRAMMING
AUTHOR'S: JOYDIP KANJILAL
PUBLISHER: TATA MCGRAW-HILL
YEAR: 2011
DOWNLOAD/BUY: @Blogger | @Amazon | @Flipkart

5.
BOOK: PROGRAMMING MICROSOFT ASP.NET
AUTHOR'S: DINO ESPOSITO
PUBLISHER: DREAMTECH PRESS
YEAR: 2011
DOWNLOAD: @Blogger | @PDF | @Torrent
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ADVANCED WEB PROGRAMMING
(SYLLABUS)

B.Sc.IT
SEMESTER – V

6. **BOOK:** BEGINNING VISUAL C# 2010
AUTHOR'S: K. WATSON **|** C. NAGEL **|** J.H PADDERSON **|** J.D. REID **|** M.SKINNER
PUBLISHER: TATA MCGRAW-HILL
YEAR: 2010
DOWNLOAD/BUY: @Blogger **| @**Amazon **| @**Flipkart

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B.Sc.IT: Semester – V

(Syllabus)

[2018 – 2019]

PAPER - IV

ELECTIVE – I

Linux System

Administration

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LINUX SYSTEM ADMINISTRATION
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– : SYLLABUS : –

UNIT I	**RED HAT ENTERPRISE LINUX	COMMAND LINE	SYSTEM ADMINISTRATION TASKS	MANAGING SOFTWARE**

⇒ **Introduction To Red Hat Enterprise Linux:**
- *Linux*
- *Open Source and Red Hat*
- *Origins Of Linux*
- *Distributions*
- *Duties Of Linux System Administrator*

⇒ **Command Line:**
- *Working With The Bash Shell*
- *Getting The Best Of Bash*
- *Useful Bash Key Sequences*
- *Working With Bash History*
- *Performing Basic File System Management Tasks*
- *Working With Directories*
- *Piping And Redirection*
- *Finding Files*

⇒ **System Administration Tasks:**
- *Performing Job Management Tasks*
- *System And Process Monitoring And Management*
- *Managing Processes With ps*
- *Sending Signals To Processes With The Kill Command*
- *Using Top To Show Current System Activity*
- *Managing Process Niceness*
- *Scheduling Jobs*
- *Mounting Devices*
- *Working With Links*
- *Creating Backups*
- *Managing Printers*
- *Setting Up System Logging*
- *Setting Up Rsyslog*
- *Common Log Files*
- *Setting Up Logrotate*

⇒ **Managing Software:**
- *Understanding RPM*
- *Understanding Meta Package Handlers*
- *Creating Your Own Repositories*
- *Managing Repositories*
- *Installing Software With Yum*
- *Querying Software*
- *Extracting Files From RPM Packages*

UNIT II	**CONFIGURING AND MANAGING STORAGE	CONNECTING TO THE NETWORK	GROUPS AND PERMISSIONS	BASIC PERMISSIONS**

⇒ **Configuring And Managing Storage:**
- *Understanding Partitions And Logical Volumes*
- *Creating Partitions*
- *Creating File Systems*
- *File Systems Overview*

Turn Over ☞

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- *Creating File Systems*
- *Changing File System Properties*
- *Checking The File System Integrity*
- *Mounting File Systems Automatically Through fstab*
- *Working With Logical Volumes*
- *Creating Logical Volumes*
- *Resizing Logical Volumes*
- *Working With Snapshots*
- *Replacing Failing Storage Devices*
- *Creating Swap Space*
- *Working With Encrypted Volumes*

⇒ **Connecting To The Network:**
- *Understanding NetworkManager*
- *Working with Services and Runlevels*
- *Configuring The Network With NetworkManager*
- *Working With System-Config-Network*
- *NetworkManager Configuration Files*
- *Network Service Scripts*
- *Networking From The Command Line*
- *Troubleshooting Networking*
- *Setting Up IPv6*
- *Configuring SSH*
- *Enabling the SSH Server*
- *Using the SSH Client*
- *Using PuTTY On Windows Machines*
- *Configuring Key-Based SSH Authentication*
- *Using Graphical Applications with SSH*
- *Using SSH Port Forwarding*
- *Configuring VNC Server Access Working With Users*

⇒ **Groups And Permissions:**
- *Managing Users And Groups*
- *Commands For User Management*
- *Managing Passwords*
- *Modifying and Deleting User Accounts*
- *Configuration Files*
- *Creating Groups*
- *Using Graphical Tools for User and Group Management*
- *Using External Authentication Sources*
- *The Authentication Process*
- *sssd*
- *nsswitch*
- *Pluggable Authentication Modules*
- *Managing Permissions*
- *The Role Of Ownership*

⇒ **Basic Permissions:**
- *Read, Write And Execute*
- *Advanced Permissions*
- *Working With Access Control Lists*
- *Setting Default Permissions With umask*
- *Working With Attributes*

Turn Over ☞

UNIT III

SECURING SERVER WITH iptables | SETTING UP CRYPTOGRAPHIC SERVICES | CONFIGURING SERVER FOR FILE SHARING

⇒ **Securing Server With iptables:**
- *Understanding Firewalls*
- *Setting Up A Firewall With System-Config-Firewall*
- *Allowing Services*
- *Trusted Interfaces*
- *Masquerading*
- *Configuration Files*
- *Setting Up A Firewall With iptables*
- *Tables*
- *Chains And Rules*
- *Composition Of Rule*
- *Configuration Example*
- *Advanced iptables Configuration*
- *Configuring Logging*
- *The Limit Module*
- *Configuring NAT*

⇒ **Setting Up Cryptographic Services:**
- *Introducing SSL Proof Of Authenticity*
- *The Certificate Authority*
- *Managing Certificates With openssl*
- *Creating A Signing Request*
- *Working With GNU Privacy Guard*
- *Creating GPG Keys*
- *Key Transfer*
- *Managing GPG Keys*
- *Encrypting Files With GPG*
- *GPG Signing*
- *Signing RPM Files*

⇒ **Configuring Server For File Sharing:**
- *What Is NFS?*
- *Advantages And Disadvantages Of NFS*
- *Configuring NFS4*
- *Setting Up NFSv4*
- *Mounting An NFS Share*
- *Making NFS Mounts Persistent*
- *Configuring Automount*
- *Configuring Samba*
- *Setting Up A Samba File Server*
- *Samba Advanced Authentication Options*
- *Accessing Samba Shares*
- *Offering FTP Services*

UNIT IV

CONFIGURING DNS AND DHCP | SETTING UP A MAIL SERVER | CONFIGURING APACHE ON RED HAT ENTERPRISE LINUX

⇒ **Configuring DNS And DHCP:**
- *Introduction To DNS*
- *The DNS Hierarchy*
- *DNS Server Types*
- *The DNS Lookup Process*

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- *DNS Zone Types*
- *Setting Up A DNS Server*
- *Setting Up a Cache-Only Name Server*
- *Setting Up A Primary Name Server*
- *Setting Up A Secondary Name Server*
- *Understanding DHCP*
- *Setting Up A DHCP Server*

⇒ **Setting Up A Mail Server:**
  - *Using The Message Transfer Agent*
  - *The Mail Delivery Agent*
  - *The Mail User Agent*
  - *Setting Up Postfix As An SMTP Server*
  - *Working With Mutt*
  - *Basic Configuration*
  - *Internet Configuration*
  - *Configuring Dovecot For POP And IMAP*

⇒ **Configuring Apache On Red Hat Enterprise Linux:**
  - *Configuring The Apache Web Server*
  - *Creating A Basic Website*
  - *Understanding The Apache Configuration Files*
  - *Apache Log Files*
  - *Working With Virtual Hosts*
  - *Securing The Web Server With TLS Certificates*
  - *Configuring Authentication*
  - *Setting Up Authentication With .htpasswd*
  - *Configuring LDAP Authentication*
  - *Setting Up MySQL*

UNIT V

INTRODUCING BASH SHELL SCRIPTING | HIGH-AVAILABILITY CLUSTERING | SETTING UP AN INSTALLATION SERVER

⇒ **Introducing Bash Shell Scripting:**
  - *Introduction*
  - *Elements Of A Good Shell Script*
  - *Executing The Script*
  - *Working With Variables And Input*
  - *Understanding Variables*
  - *Variables*
  - *Subshells And Sourcing*
  - *Working With Script Arguments*
  - *Asking For Input*
  - *Using Command Substitution*
  - *Substitution Operators*
  - *Changing Variable Content With Pattern Matching*
  - *Performing Calculations*
  - *Using Control Structures*
  - *Using if...then...else*
  - *Using Case*
  - *Using While*
  - *Using Until*
  - *Using For*
  - *Configuring Booting With GRUB*

⇒ **High-Availability Clustering:**
  - *High-Availability Clustering*

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- *The Workings Of High Availability*
- *High-Availability Requirements*
- *Red Hat High-Availability Add-on Software*
- *Components*
- *Configuring Cluster-Based Services*
- *Setting Up Bonding*
- *Setting Up Shared Storage*
- *Installing The Red Hat High Availability Add-On*
- *Building The Initial State Of The Cluster*
- *Configuring Additional Cluster Properties*
- *Configuring A Quorum Disk*
- *Setting Up Fencing*
- *Creating Resources And Services*
- *Troubleshooting A Nonoperational Cluster*
- *Configuring GFS2 File Systems*

⇒ **Setting Up An Installation Server:**
- *Configuring A Network Server As An Installation Server*
- *Setting Up A TFTP And DHCP Server For PXE Boot*
- *Installing The TFTP Server*
- *Configuring DHCP For PXE Boot*
- *Creating The TFTP PXE Server Content*
- *Creating A Kickstart File*
- *Using A Kickstart File To Perform An Automated*
- *Installation*
- *Modifying The Kickstart File With*
- *System-Config-Kickstart*
- *Making Manual Modifications To The Kickstart File*

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LINUX SYSTEM ADMINISTRATION
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SEMESTER – V

– : BOOKS : –

1.
BOOK TITLE: RED HAT ENTERPRISE LINUX 6 ADMINISTRATION
AUTHOR'S: SANDER VAN VUGT
PUBLISHER: WILEY
YEAR: 2013
PAPERBACK: 672 PAGES
DOWNLOAD/BUY: @BLOGGER | @PDF | @TORRENT

2.
BOOK TITLE: RED HAT LINUX NETWORKING AND SYSTEM ADMINISTRATION
AUTHOR'S: TERRY COLLINGS | KURT WALL
PUBLISHER: WILEY
EDITION: 3RD
YEAR: 2005
PAPERBACK: 992 PAGES
DOWNLOAD/BUY: @BLOGGER | @AMAZON | @FLIPKART

3.
BOOK TITLE: LINUX ADMINISTRATION: A BEGINNER'S GUIDE
AUTHOR'S: WALE SOYINKA
PUBLISHER: MCGRAW-HILL
EDITION: 5TH
YEAR: 01/JULY/2017
PAPERBACK: 736 PAGES
DOWNLOAD/BUY: @BLOGGER | @PDF | @TORRENT

4.
BOOK TITLE: RED HAT RHCSA/RHCE 7 CERT GUIDE
AUTHOR'S: SANDER VAN VUGT
PUBLISHER: PEARSON
YEAR: 08/SEPTEMBER/2015
PAPERBACK: 1008 PAGES
DOWNLOAD/BUY: @BLOGGER | @PDF | @TORRENT

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(Syllabus)

[2018 – 2019]

PAPER - IV

ELECTIVE – II

Enterprise Java

– : SYLLABUS : –

UNIT I

UNDERSTANDING JAVA EE | JAVA EE ARCHITECTURE, SERVER AND CONTAINERS | JAVA SERVLETS | SERVLET API AND LIFECYCLE | WORKING WITH SERVLETS & DATABASES

⇒ **Understanding Java EE:**
- *What Is An Enterprise Application?*
- *What Is Java Enterprise Edition?*
- *Java EE Technologies*
- *Java EE evolution*
- *Glassfish Server*

⇒ **Java EE Architecture, Server and Containers:**
- *Types Of System Architecture*
- *Java EE Server*
- *Java EE Containers*

⇒ **Introduction To Java Servlets:**
- *The Need For Dynamic Content*
- *Java Servlet Technology*
- *Why Servlets?*
- *What Can Servlets Do?*

⇒ **Servlet API And Lifecycle:**
- *Java Servlet API*
- *The Servlet Skeleton*
- *The Servlet Life Cycle*
- *A Simple Welcome Servlet*

⇒ **Working With Servlets:**
- *Getting Started*
- *Using Annotations Instead Of Deployment Descriptor*

⇒ **Working With Databases:**
- *What Is JDBC?*
- *JDBC Architecture*
- *Accessing Database*
- *The Servlet GUI And Database Example*

UNIT II

REQUEST DISPATCHER | COOKIES | SESSION | WORKING WITH FILES & NON-BLOCKING I/O

⇒ **Request Dispatcher:**
- *Resquestdispatcher Interface*
- *Methods Of Requestdispatcher*
- *Requestdispatcher Application*

⇒ **COOKIES:**
- Kinds Of Cookies
- Where Cookies Are Used?
- Creating Cookies Using Servlet
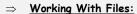- Dynamically Changing The Colors Of A Page

⇒ **SESSION:**
- *What Are Sessions?*
- *Lifecycle Of Http Session*
- *Session Tracking With Servlet API*
- *A Servlet Session Example*

Turn Over ☞

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⇒ **Working With Files:**
- *Uploading Files*
- *Creating An Upload File Application*
- *Downloading Files*
- *Creating A Download File Application*

⇒ **Working With Non-Blocking I/O:**
- *Creating A Non-Blocking Read Application*
- *Creating The Web Application*
- *Creating Java Class*
- *Creating Servlets*
- *Retrieving The File*
- *Creating index.jsp*

UNIT III

JAVA SERVER PAGES | ABOUT JAVA SERVER PAGES GETTING STARTED WITH JAVA SERVER PAGES | ACTION ELEMENTS | IMPLICIT OBJECTS SCOPE AND EL EXPRESSIONS | JAVA SERVER PAGES STANDARD TAG LIBRARIES

⇒ **Introduction To Java Server Pages:**
- *Why Use Java Server Pages?*
- *Disadvantages Of JSP*
- *JSP Vs Servlets*
- *Life Cycle Of A JSP Page*
- *How Does A JSP function?*
- *How Does JSP Execute?*

⇒ **About Java Server Pages Getting Started With Java Server Pages:**
- *Comments*
- *JSP Document*
- *JSP Elements*
- *JSP GUI Example*

⇒ **Action Elements:**
- *Including Other Files*
- *Forwarding JSP Page To Another Page*
- *Passing Parameters For Other Actions*
- *Loading A JavaBean*

⇒ **Implicit Objects Scope And El Expressions:**
- *Implicit Objects*
- *Character Quoting Conventions*
- *Unified Expression Language [Unified El]*
- *Expression Language*

⇒ **Java Server Pages Standard Tag Libraries:**
- *What Is Wrong In Using JSP Scriptlets Tags?*
- *How JSTL Fixes JSP Scriptlets Shortcomings?*
- *Disadvantages Of JSTL*
- *Tag Libraries*

UNIT IV

ENTERPRISE JAVABEANS | GETTING STARTED WITH ENTERPRISE JAVABEANS | WORKING WITH SESSION BEANS & MESSAGE DRIVEN BEANS | INTERCEPTORS

⇒ **Introduction To Enterprise JavaBeans:**
- *Enterprise Bean Architecture*
- *Benefits Of Enterprise Bean*
- *Types Of Enterprise Bean*
- *Accessing Enterprise Beans*

- ▪ *Enterprise Bean Application*
- ▪ *Packaging Enterprise Beans*
- ⇒ **Getting Started With Enterprise JavaBeans:**
    - ▪ *Creating A Web Application*
    - ▪ *Creating An Enterprise Bean*
    - ▪ *Creating A Web Client [Servlet]*
    - ▪ *Creating A JSP File*
    - ▪ *Build The Web Application*
    - ▪ *Running The Web Application*
- ⇒ **Working With Session Beans:**
    - ▪ *When To Use Session Beans?*
    - ▪ *Types Of Session Beans*
    - ▪ *Remote And Local Interfaces*
    - ▪ *Accessing Interfaces*
    - ▪ *Lifecycle Of Enterprise Beans*
    - ▪ *Packaging Enterprise Beans*
    - ▪ *Example Of Stateful Session Bean*
    - ▪ *Example Of Stateless Session Bean*
    - ▪ *Example Of Singleton Session Beans*
- ⇒ **Working With Message Driven Beans:**
    - ▪ *Lifecycle Of A Message Driven Bean*
    - ▪ *Uses Of Message Driven Beans*
    - ▪ *The Message Driven Beans Example*
- ⇒ **INTERCEPTORS:**
    - ▪ *Request And Interceptor*
    - ▪ *Defining An Interceptor*
    - ▪ *AroundInvoke Method*
    - ▪ *Applying Interceptor*
    - ▪ *Adding An Interceptor To An Enterprise Bean*
    - ▪ *Build And Run The Web Application*

UNIT V

PERSISTENCE, OBJECT/RELATIONAL MAPPING AND JPA | JAVA PERSISTENCE API | WRITING JPA APPLICATION | HIBERNATE | WRITING HIBERNATE APPLICATION

- ⇒ **Persistence, Object/Relational Mapping And JPA:**
    - ▪ *What Is Persistence?*
    - ▪ *Persistence In Java*
    - ▪ *Current Persistence Standards In Java*
    - ▪ *Why Another Persistence Standards?*
    - ▪ *Object/Relational Mapping*
- ⇒ **Introduction To Java Persistence API:**
    - ▪ *The Java Persistence API*
    - ▪ *JPA*
    - ▪ *ORM*
    - ▪ *Database And The Application*
    - ▪ *Architecture Of JPA*
    - ▪ *How JPA Works?*
    - ▪ *JPA Specifications*
- ⇒ **Writing JPA Application:**
    - ▪ *Application Requirement Specifications*
    - ▪ *Software Requirements*
    - ▪ *The Application Development Approach*
    - ▪ *Creating Database And Tables In MySQL*
    - ▪ *Creating A Web Application*

Turn Over ☞

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- *Adding The Required Library Files*
- *Creating A JavaBean Class*
- *Creating Persistence Unit [Persistence.Xml]*
- *Creating JSPS*
- *The JPA Application Structure*
- *Running The JPA Application*

⇒ **Introduction To Hibernate:**
- *What Is Hibernate?*
- *Why Hibernate?*
- *Hibernate, Database and The Application*
- *Components Of Hibernate*
- *Architecture Of Hibernate*
- *How Hibernate Works?*

⇒ **Writing Hibernate Application:**
- *Application Requirement Specifications*
- *Software Requirements*
- *The Application Development Approach*
- *Creating Database And Tables In MySQL*
- *Creating A Web Application*
- *Adding The Required Library Files*
- *Creating A JavaBean Class*
- *Creating Hibernate Configuration File*
- *Adding A Mapping Class*
- *Creating JSPS*
- *Running The Hibernate Application*

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– : BOOKS : –

1.
BOOK TITLE: JAVA EE 7 FOR BEGINNERS
AUTHOR'S: SHARANAM SHAH **|** VAISHALI SHAH
PUBLISHER: SPD
EDITION: 1ST
YEAR: 2017
PAPERBACK: 1092 PAGES
DOWNLOAD/BUY: @BLOGGER **|** @PINTEREST

2.
BOOK TITLE: JAVA EE 8 COOKBOOK
AUTHOR'S: ELDER MORAES
PUBLISHER: PACKT
EDITION: 1ST
YEAR: 09/APRIL/2018
PAPERBACK: 382 PAGES
DOWNLOAD/BUY: @BLOGGER **|** @AMAZON **|** @FLIPKART

3.
BOOK TITLE: ADVANCED JAVA PROGRAMMING
AUTHOR'S: UTTAM KUMAR ROY
PUBLISHER: OXFORD UNIVERSITY PRESS
EDITION: 1ST
YEAR: 21/APRIL/2015
PAPERBACK: 880 PAGES
DOWNLOAD/BUY: @BLOGGER **|** @PDF **|** @TORRENT

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PAPER - IV

ELECTIVE – II

Next Generation Technologies

– : SYLLABUS : –

UNIT I	BIG DATA | NOSQL | INTRODUCING MONGODB

⇒ **Big Data:**
- Getting Started
- Big Data
- Facts About Big Data
- Big Data Sources
- Three Vs Of Big Data
- Volume
- Variety
- Velocity
- Usage Of Big Data
- Visibility
- Discover And Analyze Information
- Segmentation And Customizations
- Aiding Decision Making
- Innovation
- Big Data Challenges
- Policies And Procedures
- Access To Data
- Technology And Techniques
- Legacy Systems And Big Data
- Structure Of Big Data
- Data Storage
- Data Processing
- Big Data Technologies

⇒ **NoSQL:**
- SQL
- NoSQL
- Definition
- A Brief History Of NoSQL
- ACID Vs. BASE
- CAP Theorem (Brewer's Theorem)
- The BASE
- NoSQL Advantages And Disadvantages
- Advantages Of NoSQL
- Disadvantages Of NoSQL
- SQL Vs. NoSQL Databases
- Categories Of NoSQL Databases

⇒ **Introducing MongoDB:**
- History
- MongoDB Design Philosophy
- Speed
- Scalability And Agility
- Non-Relational Approach
- JSON-Based Document Store
- Performance Vs. Features
- Running The Database Anywhere
- SQL Comparison

Turn Over ☛

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NEXT GENERATION TECHNOLOGIES
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UNIT II

THE MONGODB DATA MODEL | USING MONGODB SHELL | MONGODB ARCHITECTURE

⇒ **The MongoDB Data Model:**
- *The Data Model*
- *JSON And BSON*
- *The Identifier (_id)*
- *Capped Collection*
- *Polymorphic Schemas*
- *Object-Oriented Programming*
- *Schema Evolution*

⇒ **Using MongoDB Shell:**
- *Basic Querying*
- *Create And Insert*
- *Explicitly Creating Collections*
- *Inserting Documents Using Loop*
- *Inserting By Explicitly Specifying _id*
- *Update*
- *Delete*
- *Read*
- *Using Indexes*
- *Stepping Beyond the Basics*
- *Using Conditional Operators*
- *Regular Expressions*
- *MapReduce*
- *Aggregate()*
- *Designing An Application's Data Model*
- *Relational Data Modeling And Normalization*
- *MongoDB Document Data Model Approach*

⇒ **MongoDB Architecture:**
- *Core Processes*
- *Mongod*
- *Mongo*
- *Mongos*
- *MongoDB Tools*
- *Standalone Deployment*
- *Replication*
- *Master/Slave Replication*
- *Replica Set*
- *Implementing Advanced Clustering With Replica Sets*
- *Sharding*
- *Sharding Components*
- *Data Distribution Process*
- *Data Balancing Process*
- *Operations*
- *Implementing Sharding*
- *Controlling Collection Distribution (Tag-Based Sharding)*
- *Points To Remember When Importing Data In A ShardedEnvironment*
- *Monitoring For Sharding*
- *Monitoring The Config Servers*
- *Production Cluster Architecture*
- *Scenario 1*
- *Scenario 2*
- *Scenario 3*
- *Scenario 4*

Turn Over ☞

UNIT III

MONGODB STORAGE ENGINE | MONGODB USE CASES | MONGODB LIMITATIONS | MONGODB BEST PRACTICES

⇒ **MongoDB Storage Engine:**
- *Data Storage Engine*
- *Data File (Relevant for MMAPv1)*
- *Namespace (.ns File)*
- *Data File (Relevant For WiredTiger)*
- *Reads And Writes*
- *How Data Is Written Using Journaling*
- *GridFS – The MongoDB File System*
- *The Rationale Of GridFS*
- *GridFSunder The Hood*
- *Using GridFS*
- *Indexing*
- *Types Of Indexes*
- *Behaviors And Limitations*

⇒ **MongoDB Use Cases:**
- *Use Case 1 – Performance Monitoring*
- *Schema Design*
- *Operations*
- *Sharding*
- *Managing The Data*
- *Use Case 2 – Social Networking*
- *Schema Design*
- *Operations*
- *Sharding*

⇒ **MongoDB Limitations:**
- *MongoDB Space Is Too Large (Applicable For MMAPv1)*
- *Memory Issues (Applicable For Storage Engine MMAPv1)*
- *32-Bit Vs. 64-bit*
- *BSON Documents*
- *Namespaces Limits*
- *Indexes Limit*
- *Capped Collections Limit – Maximum Number Of Documents In A Capped Collection*
- *Sharding Limitations*
- *Shard Early to Avoid Any Issues*
- *Shard Key Can't Be Updated*
- *Shard Collection Limit*
- *Select the Correct Shard Key*
- *Security Limitations*
- *No Authentication by Default*
- *Traffic To And From MongoDB Isn't Encrypted*
- *Write And Read Limitations*
- *Case-Sensitive Queries*
- *Type-Sensitive Fields*
- *No JOIN*
- *Transactions*
- *MongoDB Not Applicable Range*

⇒ **MongoDB Best Practices:**
- *Deployment*
- *Hardware Suggestions From The MongoDB Site*
- *Few Points To Be Noted*

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- Coding
- Application Response Time Optimization
- Data Safety
- Administration
- Replication Lag
- Sharding
- Monitoring

UNIT IV

THE END OF DISK? | SSD AND IN-MEMORY DATABASES | JQUERY

⇒ **The End Of Disk? SSD And In-Memory Databases:**
- The End of Disk?
- Solid State Disk
- The Economics of Disk
- SSD-Enabled Databases
- In-Memory Databases
- TimesTen
- Redis
- SAP HANA
- VoltDB
- Oracle 12c "in-Memory Database
- Berkeley Analytics Data Stack And Spark
- Spark Architecture

⇒ **jQuery:**
- Introduction
- Traversing The DOM
- DOM Manipulation With jQuery
- Events
- Ajax With jQuery
- jQuery Plug-ins
- jQuery Image Slider

UNIT V

JSON

⇒ **JSON:**
- Introduction
- JSON Grammar
- JSON Values
- JSON Tokens
- Syntax
- JSON vs XML
- Data Types
- Objects
- Arrays
- Creating JSON
- JSON Object
- Parsing JSON
- Persisting JSON
- Data Interchange
- JSON PHP
- JSON HTML
- JSONP

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NEXT GENERATION TECHNOLOGIES
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– : BOOKS : –

1.
BOOK TITLE: MONGODB: THE DEFINITIVE GUIDE, POWERFUL AND SCALABLE DATA STORAGE
AUTHOR'S: KRISTINA CHODOROW
PUBLISHER: SHROFF
EDITION: 2ND
YEAR: 2013
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